DOCUMENT RESUME

ED 170 032 **PS 010 518**

AUTHOR	Clark, Audrey; And Others
TITLE	The Role of Cognition in Children's Explanations and Preferences for Skin-Color.
PUB DATE	Apr 79
NOTE	31p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 8-12, 1979)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Age Differences; *Attribution Theory; *Caucasian Students; *Childhood Attitudes; Cognitive Development; Developmental Stages; Elementary School Students; Perceptual Development; Preschool Children; *Racial Attitudes; *Racial Discrimination; Research
IDENTIFIERS	*Skin Color

ABSTRACT

The purpose of this study was to measure social causality (skin-color attributions) of white children on a Skin-Color Probe, and to explore the developmental concomitants related to children's explanations of skin color. Seventy-two white children, including equal numbers of males and females, were divided into three age groupings (27-59 months, 60-87 months, and 88-115 months). Equal numbers of boys and girls in each age grouping were assigned to two female examiners: one black, the other white. Each child was individually examined on four developmental measures (Clay Tasks, Origin of Night Interview, Picture Task and Skin-Color Probe), and on one skin-color attitude measure (The Preschool Racial Attitude Measure II). It was hypothesized that: (1) the explanations children give for skin-color are influenced by their level of cognitive development; (2) skin-color attributions (social causality) correlated with other classes of attributions (physical conservation, physical causality, and social identity); (3) acquisition of physical concepts precedes acquisition of social concepts and (4) children's skin-color preferences are influenced by their level of cognitive development. Results indicated that the explanations and preferences of children for skin-color were related to their developmental level, that these perceptions and concepts were correlated with perceptions and concepts in other areas, and that operational thinking was achieved more rapidly in relation to physical phenomena than social phenomena. In addition, a significant curvilinear relationship between age and skin-color bias, significant age by cognitive level interaction, and a significant race of tester by cognitive level interactions were found. (Author/MP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED170032

The Role of Cognition in Children's Explanations and Preferences for Skin-color

Audrey Clark

California State University, Northridge

Myron H. Dembo and Dennis Hocevar

University of Southern California

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

E. Audrey Clark

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

PS 010518

Presented at the 1979 Annual Meeting of the American Educational Research Association, San Francisco, California

Session 22.02

Abstract

A black and a white female examiner assessed 72 white children on a Skin-Color Probe designed to measure social causality and explore the developmental concommitants related to children's explanations of skin-color. Social causality followed a developmental hierarchy and correlated significantly with performance on previously researched measures of physical conservation, physical causality, and social identity. Conceptual development preceeded more rapidly on physical measures than social measures. Substantial pro-white bias was noted on the Preschool Racial Attitude Measure: II (Williams et al. 1975b). A hierarchical multiple regression analysis was used to evaluate the determinants of skin-color bias, and indicated that differences in attitudes toward skin-color were related to the developmental level of children. In addition, a significant curvilinear relationship between age and skin-color bias, significant age by cognitive level interactions, and a significant race of tester by cognitive level interaction were found.

The Role of Cognition in Children's Explanations and Preferences for Skin-color

Skin-color is generally recognized as the most salient individual difference characteristic of particular racial groups. As a result, it has been widely investigated in studies of children's attitudes toward their own and other races. These investigations have found that both black and white children attribute more positive value to white skin-color than black skin-color (Clark & Clark, 1947; Katz & Zalk, 1974; Williams, Best, Boswell, Mattson & Graves, 1975b). They also indicate that this difference is less pronounced during the preschool years than during the kindergarten and early primary school years. Children's pro-white attitudes appear to peak at the age of seven or eight and are somewhat modified thereafter.

The most frequent explanations of pro-white prejudice among young children suggest that it is a function of the acquisition of the prejudice of the larger society, learned in the family, or influenced by early affective learning related to concepts such as "daylight" or "nighttime" (Williams et al., 1975b). In other words, white might be considered good because the majority of people think it is good, because the family prefers it, or because it is associated with daylight. In view of these explanations, it would be expected that since older children have had more exposure to these environmental variables, their pro-white attitude should increase or at least be maintained. The decrease in pro-white attitudes

around age seven is not consistent with these explanations of the development of racial attitudes.

Katz (1976) believes that a child's perceptions and concepts about people should follow the same rules as their perceptions and concepts about other kinds of stimuli. This belief suggests the possibility of developmental comcommitants to attitude formation. Piaget's (1929) cognitive-developmental theory that explains causality according to the child's available cognitive structures was used as a conceptual basis from which to evaluate the role of cognition in children's attitudes and explanations of skin-color.

Support for a cognitive-developmental interpretation of children's skin-color preferences and explanations would require that they follow a Piagetian stage sequence similar to other phenomena (e.g. physical conservation). As a result, this study compared the sequence of skin-color explanations and preferences with previously researched tasks that have been shown to be stage-related. Further, it was believed that a decalage would occur whereby the acquisition of physical concepts (e.g. clay conservation task) would precede social concepts (e.g. skin-color explanations). This expectation was based on investigations by Laurendeau and Pinard (1963) and Bernstein and Cowan (1975).

The following hypotheses were formulated in the present study: (a) the explanations children give for skin-color are influenced by their level of cognitive development; (b) skin-color attributions (social causality) correlate with other classes of attributions (physical conservation, physical

causality, and social identity); (c) acquisition of physical concepts precedes acquisition of social concepts and (d) children's skin-color preferences are influenced by their level of cognitive development.

Method

Subjects

Seventy-two white children participated in the study including equal numbers of males and females in each of three age groupings: 27 through 59 months, 60 through 87 months, and 88 through 115 months. All children included in the study had attended a university preschool laboratory in California and were from the middle and upper-middle socioeconomic classes.

Procedure

Equal numbers of boys and girls in each age grouping were assigned to two female examiners: one black, the other white. The examiners were credentialed teachers who were graduate students in early childhood education and child development.

Each child was examined individually on four developmental measures and one skin-color attitude measure. The developmental measures were Clay Tasks (Piaget, 1929), Origin of Night Interview (Laurendeau & Pinard, 1962), Picture Task (adapted from Lemke, 1971) and Skin-color Probe (designed for this study). The Preschool Racial Attitude Measure II (PRAM II)(Williams et al., 1975b), was used to measure attitudes toward skin-color. These individual measures were presented in a fixed format (Picture Task, Origin of Night, PRAM II, Skin-color Probe and Clay and Water Manipulations). The total examination period ranged from 20 to 45 minutes. Descriptive

material concerning the subjects was obtained through a Parent Questionnaire and school files for the purpose of determining eligibility for the study.

Developmental Measures

Each developmental measure employed a clinical interview format in which standardized questions were followed by interviewer probes to clarify the meaning of the child's responses. The Origin of Night Interview and Skin-color Probe were used to assess the reasons children gave for physical and social causality, respectively. Causality refers to the degree of artificialism in children's thinking. The Clay and Water Manipulations and Picture Task similarly evaluated physical-social conservation/identification abilities. Conservation refers to the equivalence of quantitative dimensions across transformations, while identity refers to the sameness of an object across transformations (Piaget, 1968). Thus, two balls of clay that contain the same amount of matter remain equivalent even though they are changed in shape demonstrates conservation. In addition, an understanding that a person maintains identity over the years even though that person may become larger or more wrinkled demonstrates social identity.

Clay and Water Manipulations: Physical Conservation. The child's ability to conserve physical, non-social objects was assessed by the familiar clay conservation task developed by Piaget. The child was presented with two balls of clay, and asked whether or not the two balls contained the same amount of material. After ascertaining that the two balls were equivalent, the child was then asked to claim one of the two balls and to give the other ball to the research assistant. The assistant

rolled her ball until it was a long, "hotdog" shape. Next, the researcher asked the child to compare the amounts of material in the two differently shaped clumps of clay, explaining his/her answer. Finally, the child was told of another person who said that the examiner had more clay, "because it's longer". The child was then asked whether or not he/she agreed with that person's opinion.

The research assistant rolled her piece of clay into a ball once more, and then divided that ball into two equivalent smaller balls. She again asked the child to compare the two balls and to identify their relative content of clay. The hypothetical "other person" was introduced once more, this time reputed to have said that the examiner had more clay, "because you have two, and I only have one." The child was asked to evaluate that response.

If the child could conserve quantity in the above two instances and demonstrated resistance to counter-suggestion, the research assistant asked two additional questions. The child was first asked to half-fill two jars to contain equivalent amounts of water, and to place his/her ball of clay into one of the jars. The examiner stated that she would soon place her ball of clay into the other jar, but first wanted the child to tell her what would happen when she did. The subject's response was probed until some statement was produced regarding the probable impact of the clay insertion on the water level in the examiner's jar. If the subject's explanation demonstrated conservation of volume, the examiner changed the shape of the clay to be inserted into the second jar, and repeated the

estimation procedure. After each estimate, the clay was actually inserted into the water, so that the subject could verify the expected results.

Origin of Night: Physical Causality. The measure used to assess the child's concept of non-social, ammoral physical causality was the interview developed by Laurendeau and Pinard to corroborate the existence of artificialism in children's thinking. Artificialism posits the explicit action of God or man at the origin of things, drawing all of its analogies from human industry, and lending a magical quality to the child's causal explanations (Laurendeau and Pinard, 1962).

The interviews began with general questions meant to facilitate the child's spontaneous explanation and to lead to one of three questionnaire subsections. The general questions were: "You know what the night is? Tell me, what is night? Why is it dark at night? Where does the dark come from, at night? What makes it night?" The research assistant then proceeded to the appropriate subsection, based on the form of the child's answer (i.e. explanations in terms of sleep, clouds or disappearance of the sun) and used the subsection questions to discriminate among explanations at the various developmental levels of thought.

Pictures: Conservation of Social Identity. This procedure which assessed the child's ability to conserve social objects. It was developed by Lemke (1971) as a measure of the child's sense that an individual possesses continuity through time in spite of changes in appearance, and the child's ability to identify persons on the basis of their relationships to others.

The materials used by Lemke (a series of family photographs of six children and their parents taken over a 15 year span) were not available for the present research. The techniques, therefore, were adapted to a different series of photographs, consisting of pictures of a family of three boys and one girl. The pictures covered a span of nine years, from the time the oldest child pictured was eight to the time he was 17. The youngest child pictured had not yet been born during the earliest two pictures of the sequence. All of the pictures, including three black and white and one color photograph, were 3 x 4½ inch snapshots.

The task was administered as follows. First, the child was presented with the picture that was third in the time sequence, containing all four of the children in the family. After it was established that all of the children were members of the same family, the child was shown another photo: the fourth, and last, in the time sequence. The child was requested to identify individuals across photos and to provide a rationale for making the identifications. Subsequently, the same requests were made in relation to the second and first photos in the sequence (in that order). When presented with the final two photos that did not contain the youngest child, the subject was informed that the photos included all of the children in the family at the time the photo was taken. An explanation was then sought for the whereabouts of the missing person.

Skin-color Probe: Social Causation. This aasessment evaluated the degree of artificialism in the reasons that children gave for differing skin-color characteristics among individuals. It also assessed the

accuracy with which children identified the skin-color depicted in colored drawings of black and white persons. In addition, it assessed the finality with which children attributed certain value-laden adjectives to the drawings.

The drawings used for the Skin-color Probe were Plates 5 and 27 of PRAM II (described below). Plate 5 (Series A) depicted white and black teenage boys, standing in a relaxed manner. The child was told, "Here are two boys. One of them is a friendly boy. He has a lot of friends. Which one is the friendly boy?" Plate 27 (Series B) showed white and black women, casually standing. The subject was presented with one of the pictures and was told, "Here are two women. One of them is a good woman. She does things for her neighbors and her children. Which is the good woman?"

After choosing which of the individuals in the picture was the "good" or "friendly" person, the subject was asked, "What is it that makes that person good/friendly? Is that person always good/friendly? Is the other person in the picture ever good/friendly?"

Subsequent questions determined the accuracy with which the subject applied the terms "black" and "white" (or their synonyms) to skin-color, as well as the ability to conserve identity. The questions included in this section began with, "What is different about the two people?" If skin-color was not identified as a difference by the subject, the examiner continued as follows: "Do they look different? How? What color is this person's skin... that person's? Will this person always be white? This one, black?"

The final group of questions contained in the Skin-color Probe sought to determine the level of artificiality conveyed by answers to the skin-color questions. The subject was asked, "How is it that this person's white... this one, black?" The examiner followed up on the answers to this question until she felt she had exhausted the child's understanding of skin-color, and the child would not elaborate further.

Scoring of Developmental Tests

Answers to all questions asked during the developmental interviews were written on the protocols verbatim by the examiners. The protocols were then submitted to the researcher who rated the answers to each measure on a seven point (0 to 6) developmental scale, with 6 representing the highest level of development. The rater was unaware of the identity of the subject being rated. All of the protocols of a single measure were rated at the same time. Each set of protocols on one measure was rated independently of the other measures.

Rating scale criteria (Table 1) were those used in the original research of each measure with the exception of the Skin-color Probe. The scale used in conjunction with this task was adapted from a study by Bernstein and Cowan (1975) which also dealt with social causation. As shown in Table 1, the rating scales across tasks were consistent in terms of the level at which conservation was determined to occur. A second rater scored the interviews independently to establish inter-rater reliabilities (Winer, 1971) that ranged from .91 to .95.

Insert Table 1 about here

Preschool Racial Attitude Measure II

PRAM II measured the subjects' attitudes toward skin-color. Despite its name, the instrument has been used throughout the primary grades as well as in the preschool. It is based on a variation of the semantic differential, requiring the subject to assign "good" or "bad" qualities to black or white persons depicted by artistic representations. Interspersed among the PRAM II racial attitude items are sex-role items which may be used to compare the stereotypic content of skin-color and sex-role attitudes. These items tend, also, to dissipate the subject's awareness that the primary purpose of assessment is in relationship to skin-color preference.

The PRAM II procedure consisted of presenting the subject with 18 color photographs and 18 accompanying stories: 12 skin-color attitude items formed a subset called PRAM II-Race, and six sex-role items were categorized as PRAM II-Sex. The 18 plates represented one of the two series comprising the entire 36 plate test. The two series have been demonstrated to be equivalent short forms (Williams & Morland, 1976). One of the series was used by each of the two research assistants.

The key words for evaluation of the skin-color attitude items on each subset were six positive adjectives and six negative adjectives. The test produced a 0 - 12 scale on which high scores indicated pro-white bias.

A significant degree of white bias was construed to be a score of nine or above; black bias, a score of three or below. It should be noted that scores indicate relative rather than absolute bias.

Results

Means and standard deviations are given in Table 2. First, the hypothesis that children's skin color explanations (social causality) follow a Piagetian stage sequence was examined. The fact that responses could be reliably classified into such a sequence (see Table 1) was taken to support this hypothesis. Further support for this hypothesis, as well as for the hypothesis that social causality would correlate with other stage related abilities, is shown in Table 3. As measured by the Skin-color Probe, children's causal attributions concerning skin-color correlated significantly with age as well as developmental measures of physical conservation, comprehension of physical causality, and conservation of social identity.

Insert Table 2 and Table 3 About Here

The hypothesis that the acquisition of physical concepts precedes the acquisition of social concepts was tested by first creating a composite index of physical concepts (i.e., physical conservation rating plus physical causality rating) and a composite index of social concepts (i.e., social identity rating plus social causality rating). While 69% of the subjects have scores on the physical concepts index which exceed their score on the social concepts index, only 18% of the sample have social concept scores which exceed their physical concept scores. This finding

was significant ($X^2(1) = 21.7$; $p<.001$) and interpreted as supporting the hypothesis that the acquisition of physical concepts precedes the acquisition of social concepts.

The final hypothesis deals with the determinants of skin-color preference as measured by the Preschool Racial Attitude Measure II (PRAM II). As shown in Table 2, PRAM II scores generally indicate a white skin-color preference. A hierarchical multiple regression analysis was used to evaluate the determinants of skin-color preference. Skin-color preference was regressed on: sex (0=male; 1=female); age (in months); developmental level; race of examiner (0=white; 1=black); age by developmental level interaction, age by race of tester interaction; race of tester by developmental level interaction; age-squared; and developmental level-squared. Variables were hierarchically entered into the multiple regression equation (Cohen & Cohen, 1975, p.98) in the order specified above. Product variables were used to represent the interactions (Cohen & Cohen, 1975, p. 291). Different equations were derived for each of the four cognitive level measures and the composite measure of cognitive level.

The regression results are shown in Table 4. For three of the five measures of cognitive development, a significant negative relationship between developmental level and white skin color preference was found. More importantly, cognitive level was found to interact with age in the prediction of skin-color preference regardless of which cognitive level measure was used. This interaction was analyzed by examining cognitive level/skin-color preference correlations within each of three age groups

(i.e., less than 64 months, 64-87 months, and more than 87 months). This analysis indicated that the negative correlation between cognitive level and white skin-color preference was largely confined to the age group over 87 months.

Insert Table 4 About Here

Table 4 also indicates that the age-squared term provides a significant increment in the variance accounted for in the skin color preference measure. This result suggests that the relationship between age and skin color-preference is curvilinear. Using regression analysis (Cohen & Cohen, 1975, p. 218), the equation for the polynomial regression of skin-color preference on age is $Y = .33244(X) - .00226(X^2) - 2.888$. Figure 1 illustrates this relationship. White skin-color preference gradually rises until 75 months and begins a gradual decline thereafter.

Insert Figure 1 About Here

While the cognitive development by tester interaction did not reach statistical significance in any of the equations, inspection of the data indicates that these terms would have been significant if they had been entered in the equation at an earlier point. Presumably, this was due to the problem of multicolinearity (Cohen & Cohen, 1975, p. 100). Consequently, a univariate analysis was introduced to further interpret the data concerning race of tester. The results are shown in Table 5. Whereas none of the

correlations between cognitive level and skin-color preference are significant for the white tester, three of the correlations are significant for the black tester. Specifically, lower levels of cognitive development were associated with greater white skin-color preference when the tester was black but not when the tester was white.

Insert Table 5 About Here

Discussion

Support for the hypothesis that children's explanations for skin-color are influenced by their level of cognitive development consisted of the ability to classify these explanations in a developmental hierarchy of definitively different steps. Although it was impossible to test the invariance of the developmental progression because of the cross-sectional nature of the study, it was demonstrated that age was a significant factor in the advancement of stage explanations. The developmental position was further enhanced by the finding that skin-color explanations correlated positively and significantly with other classes of attributions, including physical conservation, physical causality and social identity. These findings justify the position taken by Katz (1976) that a child's perceptions and concepts about people should follow the same rules as perceptions and concepts about other kinds of stimuli.

A second concern of the study was the order in which conceptual content develops. The determination that acquisition of physical concepts precedes that of social concepts is consistent with the findings of Bernstein and Cowan (1973). Even though object permanence is established prior to person permanence

(Gouin-Decarie, 1966; Piaget, 1968), operational thinking appears to procede at a faster rate in relation to physical objects. Possible explanations for this result are the greater ease in comparing operational changes in physical objects because of their empirical reversibility and/or the greater length of time required for noticeable changes to occur in people compared to most physical situations (e.g. A child has to live longer to see changes in a person growing older compared to seeing night turn into day or may change from one shape to another). A child between the ages of four and ten has not had much experience with human aging, and thus, has had less opportunity to equilibrate related information.

A final concern of the study was to assess the existance of developmental concommitants in children's attitudes toward skin-color. A developmental explanation of skin-color attitudes was supported by the general pattern of these attitudes with PRAM II-Race scores peaking at age seven and then diminishing. This replicated the results of previous research (Clark & Clark, 1947; Williams et al., 1975). The pro-white peak of attitudes occured at just about the age that Piaget has theorized that children are entering into the concrete operational stage. Hallmarks of the concrete operational stage are a lessening of egocentric thinking in favor of perspectives that allow the child to view a problem from the standpoint of another, the ability to decenter and the ability to conserve. These new abilities, which mark qualitative differences in the structure of thought, should allow the child to evaluate a person without dwelling

on a single characteristic (e.g. skin-color). It should also, perhaps for the first time, enable the child to be aware of the probable viewpoint of another who is sharing an experience. In this case, the other person was the examiner and the shared experience, the PRAM II-Race assessment. This fact would tend to predispose the child to examiner-influence which did occur and will be discussed later.

Cognitive level was found to interact with age in the prediction of skin-color preference regardless of which cognitive level measure was used. Inspection of the data revealed that lower cognitive level was consistent with pro-white attitudes. When correlations between skin-color attitudes and developmental levels were examined within each of three age groupings, it was noted that negative correlations (indicating lower pro-white attitudes as developmental level increased) were largely confined to the group over 87 months of age. This group exhibited a wider range of developmental levels than the younger groups. Subjects in the younger groups were clustered at the lowest levels of development, thus restricting the possibility of identifying directional relationships between developmental level and skin-color attitudes.

Interpretation of the examiner effect was complicated by the use of only one examiner of each skin-color in the study. Examiner characteristics other than skin-color may have been responsible for the differences in results. However, support of skin-color as the critical factor comes from two sources. First, the examiner effect appeared only on the Race subsection of PRAM II, even though the same examiners gave each child four developmental tests as well

as the Sex-role subsection of PRAM II. Secondly, the examiner effect has been found, although largely ignored or discounted, in other studies of skin-color (Katz & Zalk, 1974; Williams, Best & Boswell, 1975; Williams et al., 1975). To date, only one study (Best, 1972) has specifically evaluated the skin-color of examiner effect, and this study failed to demonstrate any examiner effect.

Another concern in the interpretation of examiner-effect was that each examiner used a different short form of the PRAM II. Thus, the demonstrated effect could be a function of differences in the test forms. The lack of differences found among younger subjects in the relationship to the examiner is contrary to expectations if differences were due merely to test forms. In addition, even though questions from PRAM II-Race and PRAM II-Sex were interspersed, there were no examiner-related differences in performance on PRAM II-Sex items. The differences in performance apparently were confined to skin-color content, the most notable difference between the two examiners.

In summary, all research hypotheses of the study were supported, indicating that the explanations and preferences of children for skin-color are related to cognitive level, that these perceptions and concepts are correlated with perceptions and concepts in other areas, and that operational thinking is achieved more rapidly in relation to physical phenomena than social phenomena.

In addition, evidence points to an examiner-effect that influences the scores of children on the PRAM II attitude measure. Additional research

should be undertaken to clarify the finding in this area which were confounded by the small number of examiners employed in the research, dual forms of the PRAM II measure and the colinea-ity of variables being investigated. The evidence for examiner effect is sufficiently strong, however, to cast doubt upon the appropriateness of the use of the instrument with children in the concrete operational or formal operational stages who have become less egocentric and centered in their thinking.

References

Bernstein, A. C. & Cowan, P. A. Children's concepts of how people get babies. Child Development, 1975, 45, 77-91.

Best, D. Race of Examiner Effects on the Racial Attitude Responses of Preschool Children. Unpublished Master's Thesis, Wake Forest University, 1972.

Clark, K. B. & Clark, M. P. Racial identification and preference in negro children. In E. E. Maccoby, T. M. Newcomb & E. L. Hartley (Eds.), Reading in Social Psychology. New York: Holt, 1947.

Cohen, J. & Cohen, P. Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences, Hillsdale, N.J.: Erlbaum, 1975.

Gouin-Decarie, T. Intelligence and Affectivity in Early Childhood: An Experimental Study of Jean Piaget's Object Concept and Object Relations. New York: International Universities Press, Inc., 1966.

Katz, P. A. The acquisition of racial attitudes in children. In P. A. Katz (Ed.), Towards the Elimination of Racism. New York: Pergamon Press, 1976.

Katz, P. A. & Zalk, S. Doll preferences: An index of racial attitudes? Journal of Educational Psychology, 1974, 66, 663-668.

Laurendeau, M. & Pinard, A. Causal Thinking in the Child. New York: International University Press, 1962.

Lemke, S. Children's Identity Concepts. Unpublished Master's Thesis, University of California at Berkeley, 1971.

Piaget, J. The Child's Conception of the World. New York: Harcourt, Brace, 1929.

Piaget, J. On the Development of Memory and Identity (Volume 2, 1967), Heinz Werner Lecture Series. Barre, Mass.: Clark A. Press with Barre Publishers, 1968.

Williams, J. E.; Best, D.; Boswell, D. Children's racial attitudes in the early school years. Child Development, 1975a, 46, 494-500.

Williams, J. E.; Best, D.; Boswell, D.; Mattson, L. & Graves, D. Preschool Racial Attitude Measure II. Educational and Psychological Measurement, 1975b, 35, 3-18.

Williams, J.E. & Morland, J. K. Race, Color and the Young Child. Chapel Hill: The University of North Carolina Press, 1976.

Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill, 1971.

Table 1

A Developmental Comparison of Rating Systems

Piagetian Stage	Task		Task	
	Physical Conservation: Clay	Social Identity: (Family Pictures)	Physical Causality: Origin of Wind	Social Causality: Skin-color Probe
Preoperational	0: No answer or all wrong	0: An initial stage when any individual may be any other, without clear distinctions based upon race, sex, or general physical features	0: No answer or incomprehension	0: No answer or incomprehension
	1: Preoperational	1: Identity of a person in the different pictures is denied except where all qualities are the same. Alterations in appearance due to clothing, etc., interfere with judgment	1: Finalistic interpretations	1: Finalistic interpretations
		2: Static identifications, based on some size, hair style, clothing. Fewer errors. Beginning to grasp principle of ordering.	2: Artificialistic beliefs	2: Artificialistic beliefs
Transitional	2: Transitional	3: Transitional	3: Semiartificialistic and semiphysical interpretations	3: Semiartificialistic and semiphysical interpretations
Concrete	3: Conservation of clay, but not when displacing water	4: Correct identifications but the relationships of individuals within the group are not firmly grasped. Identifies own skin color.	4: Physicalism with no artificialism, but some finalistic or animistic constructions	4: Physicalism with no artificialism, but some finalistic or animistic constructions
Transitional	4.5: Conservation of clay in water, reasoning inadequate	5: Inconsistent use of context in making identifications	5: Physicalism with taints of finalism	5: Physicalism with taints of finalism
Formal	6: Conservation with reference to volume consistently made in explanations	6: Systematic operational thinking, implications for individual identity include relationships of one person to other members of group	6: Physicalism freed from all precausality	6: Physicalism freed from all precausality

Table 2

Means and Standard Deviation

	M	SD
Age in Months	73.82	23.32
Clay Task (Physical Conservation)	2.60	2.03
Origin of the Night Interview (Physical causality)	2.42	1.59
Picture Task (Social Identity)	1.99	1.84
Skin Color Probe (Social Causality)	1.60	1.65
Total Cognitive Development[a]	8.60	5.90
Preschool Racial Attitude Measure (PRAM II)	8.13	2.55

Note: N=72

[a]Total Cognitive Development is the composite of the Clay Task, Origin of the Night Interview, Picture Task and Skin Color Probe.

Table 3

Intercorrelations Between Developmental Measures

	Age	Clay Task	Origin of Night	Picture Task	Skin Color Probe	Total Cognitive Development
Age		.68	.51	.61	.57	.72
Clay Task			.49	.59	.56	.82
Origin of Night				.59	.64	.80
Picture Task					.65	.86
Skin Color Probe						.85

Note: N=72 - All correlations are statistically significant ($p < .001$)

Table 4

F-ratios for Skin Color Preference Regressions

	Physical Conservation	Physical Causality	Social Identity	Skin Color Explanation	Composite Developmental Level
Sex	1.13 (02)	1.13 (02)	1.13 (02)	1.13 (02)	1.13 (02)
Age	.20 (00)	.20 (00)	.20 (00)	.20 (00)	.20 (00)
DL	.02 (00)	4.53*(06)	6.18*(08)	2.26 (03)	4.65*(06)
Tester	1.16 (02)	1.53 (02)	1.43 (02)	1.42 (02)	1.81 (02)
Age by DL	11.58*(14)	4.55*(06)	12.79*(14)	4.12*(05)	11.19*(13)
Age by Tester	1.64 (02)	1.54 (02)	2.05 (02)	2.40 (03)	3.23 (04)
Tester by DL	.43 (00)	.68 (01)	3.17 (03)	1.67 (02)	2.45 (03)
$(Age)^2$	8.66*(10)	11.89*(13)	7.68*(07)	10.87*(12)	8.28*(08)
$(DL)^2$	.33 (00)	.00 (00)	.70 (01)	.30 (00)	.06 (00)
Age by Tester by DL	4.02 (04)	.45 (00)	1.30 (01)	1.59 (02)	3.42 (03)
All Variables	3.25*(34)	2.72*(32)	4.27*(41)	2.85*(31)	4.30*(41)

Note: Five regression equations were computed, each with a different measure of developmental level. Numbers in parentheses refer to the percentage of explained variance.

* $p<.05$

Table 5

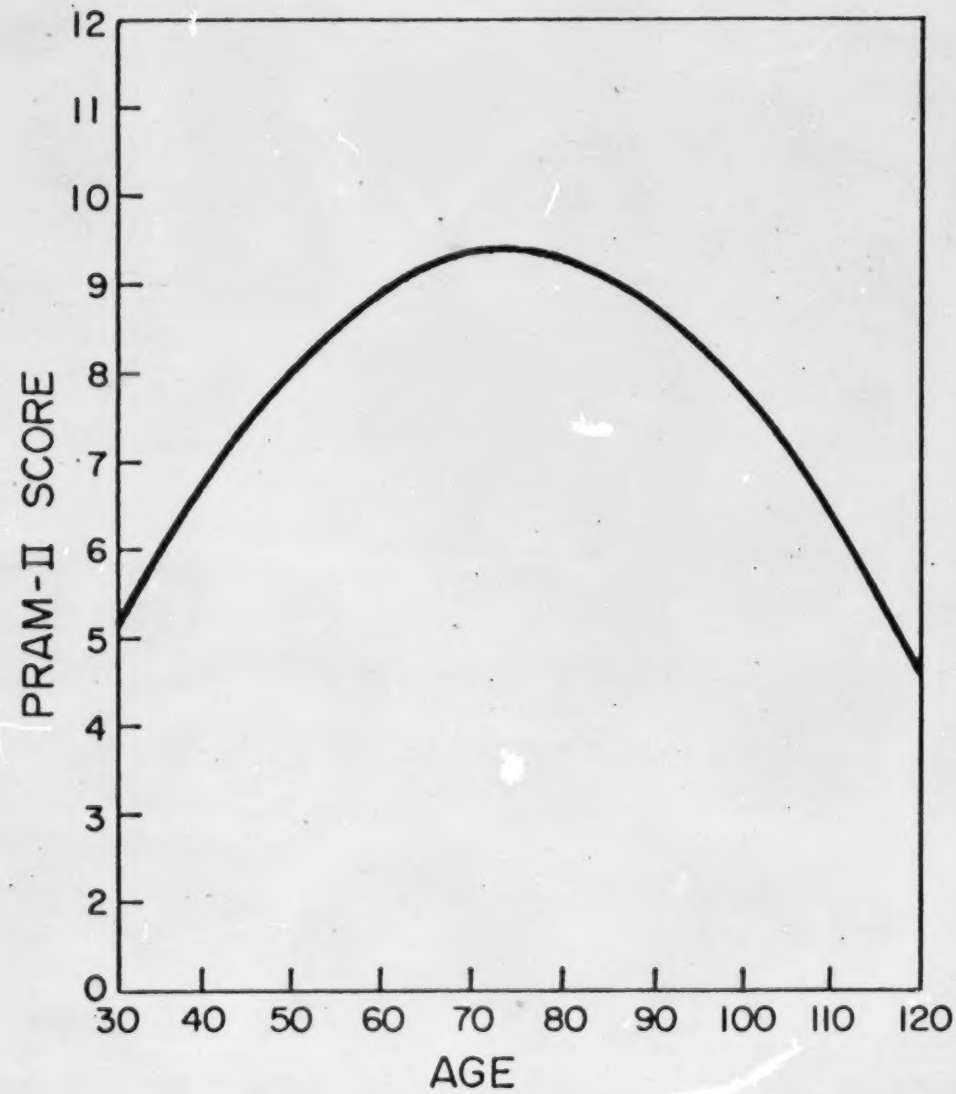
Correlations Between the Preschool Measures of Racial Attitude and Developmental Level

Developmental Level	White Tester	Black Tester
Clay Task	20	-.38*
Origin of Night	-.05	-.11
Picture Task	-.09	-.43*
Skin Color Probe	-.09	-.33*
Composite Developmental Level	.00	-.26

*$p < .05$

Figure Caption

Figure 1. Relationship between age and skin color bias.


PRAM-II SCORE
0
2
3
4
5
6
7
8
9
10
11
12
30
40
50
60
70
80
90
100
110
120
AGE